

**IARPA**  
**BROAD AGENCY ANNOUNCEMENT**  
**IARPA-BAA-09-05**



**Reynard**

Incisive Analysis Office

**IARPA-BAA-09-05**

Release Date: April 21, 2009

**As Amended on: May 4, 2009**

**As Amended on: May 27, 2009**

**IARPA**  
**BROAD AGENCY ANNOUNCEMENT: IARPA-BAA-09-05**  
Reynard

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## Part One: Overview Information

This publication constitutes a Broad Agency Announcement (BAA) and sets forth research areas of interest in the area of identifying behavioral indicators in Virtual Worlds (VWs) and Massive Multiplayer Online Games (MMOGs) that are predictive of real world characteristics of the users. Awards based on responses to this BAA are considered to be the result of full and open competition.

- **Federal Agency Name** – Intelligence Advanced Research Projects Activity (IARPA), Incisive Analysis Office
- **Funding Opportunity Title** – Reynard
- **Announcement Type** – Initial
- **Funding Opportunity Number** – IARPA-BAA-09-05
- **Catalog of Federal Domestic Assistance Numbers (CFDA)** –Not applicable.
- **Dates:** Proposal Due Date: June 16, 2009
- **BAA Summary:** Starting from the premise that real world characteristics are reflected in VW behavior, the IARPA Reynard program seeks to identify behavioral indicators in VWs and MMOGs that are related to the real world characteristics of the users.
- **Anticipated individual awards** – Multiple awards are anticipated.
- **Type of instruments that may be awarded** – Procurement contract.
- **Agency Points of contact**
  - Dr. Rita M. Bush
  - IARPA, Incisive Analysis Office
  - ATTN: IARPA-BAA-09-05
  - Office of the Director of National Intelligence
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- **Program website:** [www.iarpa.gov](http://www.iarpa.gov)
- **Questions:** IARPA will accept questions about the BAA until June 9, 2009. A consolidated Question and Answer response will be publicly posted every few days on the IARPA website [www.iarpa.gov](http://www.iarpa.gov); no answers will go directly to the submitter. Questions about administrative, technical or contractual issues must be submitted to the BAA e-mail address at [dni-iarpa-baa-09-05@ugov.gov](mailto:dni-iarpa-baa-09-05@ugov.gov). If e-mail is not available, fax questions to 301-226-9137, Attention: IARPA-BAA-09-05. All requests must include the name, e-mail address (if available) and phone number of a point of contact for the requested information. Do not send questions with proprietary content.

## Part Two: Full Text of Announcement

### **I. FUNDING OPPORTUNITY DESCRIPTION**

The Intelligence Advanced Research Projects Activity often selects its research efforts through the Broad Agency Announcement (BAA) process. The BAA will appear first on the FedBizOpps website (<http://www.fedbizopps.gov/>) and will also be available through the IARPA website (<http://www.iarpa.gov>). The following information is for those wishing to respond to the BAA.

IARPA is seeking innovative solutions for the Reynard Program. The use of a BAA solicitation allows a wide range of innovative ideas and concepts. The Reynard Program is envisioned to begin in the fourth quarter of Fiscal Year 2009 and end by 2012.

#### **I.A. Program Overview**

Events in [today](#)'s world move at an accelerating pace, and are often shaped by information (whether correct or incorrect) that is communicated by diverse and increasingly novel means. A nuanced picture of events and attitudes is required to inform policy developers and other decision-makers in this complex and fast-paced environment. IARPA sponsors leading-edge research to help the Intelligence Community keep abreast of the many sources of information needed to inform our nation's leadership. A new channel for information exchange and social interaction is emerging with the growing popularity of Virtual Worlds (VWs) and Massive Multiplayer Online Games (MMOGs). Industry experts predict the number of VW users will exceed a half billion by the end of 2009. As participation in these VWs broadens and deepens, the need for understanding the nature of interactions in these worlds arises.

Starting from the premise that Real World (RW) characteristics are reflected in Virtual World (VW) behavior, the Reynard program seeks to determine behavioral indicators in the realm of Massive Multiplayer Online Games (MMOGs) and VWs<sup>1</sup> that are predictive of RW characteristics of the users.

#### **Virtual World Definition**

For the purposes of this solicitation, a VW is defined as an environment with the following characteristics:

1. **Graphical landscape.** The primary means of interacting with the VW is generally through a rich graphical landscape using both verbal and non-verbal communication. This can be either a 3- Dimensional (3D) thick client (e.g., World of Warcraft<sup>TM</sup>, Second Life<sup>TM</sup>, etc) or a 2-Dimensional (2D) browser-based client (e.g., Maple Story<sup>TM</sup>, Travian, etc). While the means of interacting with other users can be voice or text chat, an environment which is exclusively or mostly text-based, with no graphical landscape (chat rooms, message boards, etc), is not considered a VW, for the purposes of the Reynard program.
2. **Avatars.** Users represent themselves through some form of visual representation. Different VWs allow more or less degrees of freedom in customization of this representation. The user acts in the VW through the avatar.

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<sup>1</sup> For the sake of simplicity, hereafter the term "Virtual Worlds" or VW will be used to refer to both MMOGs and VWs. The distinction is that MMOGs are typically quest-oriented environments, while VWs are typically non-quested-oriented, primarily social environments.

3. **Persistent.** A VW should have some “reality” that remains even when the user is logged off. This extends past merely saving state, because the state can evolve even when the user is not online.
4. **Shared.** Changes made to the environment are theoretically viewable by any other user. This includes but is not limited to user-generated content as in the Second Life<sup>TM</sup> model.
5. **Massive.** A VW must have enough inhabitants for realistic patterns of human behavior and interaction to appear. This need not be measured in the thousands of users. Indeed, “massive” can refer more to density than to absolute size. A hundred users in a small environment (e.g., a building) can be more massive in the experience than several thousand users spread across an entire world, since the chances of encountering and interacting with another user are much higher. This solicitation does not specify a minimum number of users that must be in the VW; proposers must provide evidence that the existing number of users in the VW will be sufficient to research the behaviors of interest.
6. **Goals.** VWs may or may not have externally-defined goals. For example, World of Warcraft<sup>TM</sup> and similar game-themed VWs have “quests” or “missions” that are inserted by the developers. In contrast, Second Life<sup>TM</sup> users must generate their own goals. This is commonly held to be the fundamental difference between MMOGs and VWs, but for the purposes of this solicitation this distinction is not relevant, so that World of Warcraft<sup>TM</sup> is just as much a VW as Second Life<sup>TM</sup>.

The definition of VWs as used by the Reynard program is not constrained by the end-user client hardware device. VWs may be accessed via a variety of devices, including PCs, consoles, and mobile phones. The Reynard program is only interested in the client device to the extent that it enables (or inhibits) expression of user behaviors.

### Related Research

Despite the growing interest in the use of VWs for social science research<sup>2</sup>, the amount of peer-reviewed, quantitative research is small.<sup>3</sup> Much of the recent published research is qualitative, being conducted by anthropologists who have participated, observed, and described their experiences in VWs<sup>4 5</sup>. That research has been valuable in pointing the way for future research, and has indicated that RW behaviors do emerge in VWs (the norms for politeness, for example).

To date, relatively little published research provides quantitatively-supported conclusions. Many of the extant quantitative analyses are demographic studies, performed to support marketing<sup>6</sup> or game design<sup>7</sup>. Other quantitative studies have examined social behaviors in virtual worlds, but do not attempt to relate these back to the characteristics of the person behind the avatar<sup>8</sup>.

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<sup>2</sup> William Sims Bainbridge. “The Scientific Research Value of Virtual Worlds.” *Science* 317, pp 472-476.

<sup>3</sup> Most VW research is not yet published in peer-reviewed journals, and can be discovered only through searching on wiki and blog posts. For example, <http://www.nickyee.com/daedalus/>

<sup>4</sup> Marty, R. M. and Stromer-Galley, J. (2007). “The Digital Dollhouse: Context and Social Norms in The Sims Online.” *Games and Culture*, 2, 4, pp 314-334.

<sup>5</sup> Boellstorff, T. (2008). *Coming of Age in Second Life: An Anthropologist Explores the Virtually Human*. Princeton University Press.

<sup>6</sup> DFC Intelligence, “Online Game Markets Forecast 2008”.

<sup>7</sup> Ducheneaut, N. and Moore, R. J. (2004). “‘Let Me Get My Alt’: Digital Identit(ies) in Multiplayer Games”. *Position paper for the CSCW 2004 Workshop on Representation of Digital Identities*; 2004 November 6; Chicago IL

<sup>8</sup> Ducheneaut, N. and Moore, R.J. (2004). “The social side of gaming: a study of interaction patterns in a massively multiplayer online game.” *CSCW '04*, November 6-8, 2004, Chicago, IL.

Some relevant, published research is summarized below. While these research results do not identify “behavioral indicators” per se, they were selected because of their relevance to the premise that RW attitudes, characteristics, cultural norms, etc will be reflected in VW behavior.

As an example, a study of personal space use in Second Life<sup>TM</sup> demonstrated that male/female avatar dyads stood closer together than female/female and male/male avatar dyads<sup>9</sup>. This observed VW phenomenon is similar to the use of personal space that has been observed in the RW, at least in Western cultures. However, a methodological limitation of the study is that the RW genders of the Second Life<sup>TM</sup> avatars were not known by the researchers.

In a second example, a study of World of Warcraft<sup>TM</sup> guilds showed that smaller guilds (less than 10 members) tended to be composed of people who already knew each other in the RW<sup>10</sup>.

As a third and final example, other researchers have hypothesized that VW residents use virtual currency in the same way that RW individuals use real currency. One experimental economics study conducted in Second Life<sup>TM</sup> employed a number of standard decision tasks such as the Ultimatum Game, the Dictator Game, the Public Good Game, the Guessing Game, and the Minimum Effort game<sup>11</sup>. The researchers found that the economic decisions made by subjects in Second Life<sup>TM</sup> paralleled the research findings of RW subjects. However, they did not examine individual differences in use of currency, or how the use of currency might be influenced by cultural factors.

### **Program Research Focus**

Starting from the premise that RW characteristics are reflected in VW behavior, performers in the Reynard program will be expected to produce one or more VW “behavioral indicators” that serve to identify RW characteristics of individuals or groups<sup>12</sup>. Characteristics of particular interest include the following: gender, approximate age (child/young adult/older), economic status (low/middle/upper), educational level (primary/secondary/college), occupation (e.g., management, technical, service, labor, educator, military, student), ideology or “world view” (pacifist/militancy, multilateralism/unilateralism, etc), degree of influence, “digital native” vs. “digital immigrant,” approximate physical geographic location (North America, South America, Europe, Asia, Australia), native language (English, German, French, Chinese, Japanese, Korean, Arabic, Russian, other), and culture (e.g., Western, Asian, Middle Eastern, Russian). Researchers may propose other RW characteristics that might be empirically deduced through behavioral indicators. Researchers may also empirically discover that some RW characteristics are able to be deduced at greater (or lesser) levels of discrimination than described in the list above. Precise geolocation is not a program requirement.

A literal mapping between RW and VW characteristics is not always expected. Individuals may choose to portray themselves as “furries”<sup>13</sup> in a VW for example, but may never dress up as

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<sup>9</sup> Yee, N., Bailenson, J.N., Urbanek, M., Chang, F., Merget, D. (2007). “The Unbearable Likeness of Being Digital: The Persistence of Nonverbal Social Norms in Online Virtual Environments.” *The Journal of CyberPsychology and Behavior*, 10, pp 115-121.

<sup>10</sup> Williams, D., Ducheneaut, N., Li, X., Zhang, Y., Yee, N., Nickell, E. (2006). “From Tree House to Barracks: The Social Life of Guilds in World of Warcraft.” *Games and Culture*, 1, pp 338-361.

<sup>11</sup> Chesney, Thomas, Chuah, Swee-Hoon, and Hoffmann, Robert. “Virtual world experimentation: An exploratory study”. Occasional Paper Series, Nottingham University Business School, December 10, 2007.

<sup>12</sup> “Groups” for the purposes of this solicitation are defined as collections of individuals sharing a common interest.

<sup>13</sup> In this context, “furries” are anthropomorphic animal avatars.

animals in the RW. However, research might show, for example, that individuals who portray themselves as furies in VWs are more likely to have occupations in the creative arts.

More specifically, proposers are encouraged to consider the following:

### Individuals

1. **Avatars and Representation.** What characteristics of an avatar may reveal something about the real-life person behind it? Some research has shown that individuals tend to create avatars in their own image<sup>14 15</sup> while other studies show that players may deliberately choose avatar characteristics that are substantially different from their own, such as in gender swapping.<sup>16</sup> What motivates avatar choice, and can we predict when an individual might select certain characteristics over others? Does avatar selection reveal something about an individual's real-life personal characteristics, attitudes, customs, groups, or culture?<sup>17</sup>
2. **Communication.** Communication mechanisms in VWs may be both verbal and nonverbal. *Verbal:* Today the primary means of verbal communication in VWs is text-based chat and messaging.<sup>18</sup> Unique language patterns have emerged in chat and texting, characterized by use of abbreviations such as LOL (laugh out loud) or BRB (be right back). Can we determine whether the person is a native-language speaker of the language (e.g., English) being used? Is the use of language in text chat characterized by a "signature," similar to that found in other studies of authorship?<sup>19</sup> Can the path of "viral ideas"<sup>20</sup> be traced through the chat history of the residents, as it apparently can in exclusively text-based media<sup>21</sup>, which may then allow inferences about the degree of influence of the propagators of the ideas? *Nonverbal:* When and why is nonverbal communication used? Does the use of nonverbal communication cues in VWs vary from RW culture to RW culture? What, if anything, might the use of VW nonverbal communication reveal about the RW person?
3. **Things Avatars Do.** Individuals inhabiting VWs engage in a variety of activities, including leisure activities such as questing, combat role-play, or dancing; work activities such as attending conferences or building objects; and less purposeful activities such as simply exploring the world or socially interacting with others. To what extent might cues in these activities provide indicators about the RW person? Do individuals from different RW cultures choose to engage in different sorts of VW activities?

### Groups

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<sup>14</sup> <http://www.nickyee.com/daedalus/archives/001613.php>

<sup>15</sup> Messinger, P. R., Ge, X., Stroulia, E., Lyons, K., Smirnov, K., and Bone, M. (2008) "On the Relationship between My Avatar and Myself". *Journal of Virtual Worlds Research*, Vol. 1 No. 2.

<sup>16</sup> <http://www.nickyee.com/daedalus/archives/001369.php>

<sup>17</sup> Reinecke, Leonard. and Trepte, Sabine. (2009). "Creating Virtual Alter Egos? Psychological Processes Underlying the Choice of Avatar Features in Computer Games" *Paper presented at the annual meeting of the International Communication Association*, May 24-28 2007, San Francisco, CA.

<sup>18</sup> Some Virtual World vendors have introduced Voice over IP (VOIP) services, but curiously, many users forego its use despite the easy availability of the technology. Some speculate that the use of voice reduces the anonymity offered by Virtual Worlds. There are exceptions, of course, such as the use of VOIP in Second Life™ for business meetings, or in World of Warcraft™ for coordinating raids.

<sup>19</sup> Ahmed Abbasi, Hsinchun Chen, "Applying Authorship Analysis to Extremist Group Web Forum Messages," 2005. *IEEE Intelligent Systems* 1541-1672, pp 67-75.

<sup>20</sup> Malcolm Gladwell, *The Tipping Point: How Little Things Can Make a Big Difference*, 2000.

<sup>21</sup> Eytan Adar and Lada Adamic. "Tracking information epidemics in Blogspace." *Web Intelligence 2005*, Compiegne, France, Sept. 19-22, 2005.

4. **Group Formation and Dynamics.** The massive multiplayer nature of VWs leads to extensive social interaction among its inhabitants. As in the RW, individuals form social bonds with others, usually after some period of interaction and trust establishment. What types of groups form, what are their characteristics, and what supports their continuance? Does group membership reveal anything about the RW individuals who belong to them? Given the multi-national nature of some VWs, are individuals from different countries more likely to form relationships than in the RW? Do individuals recognize others as from the same culture or different cultures? If so, what factors or characteristics do they use to recognize each other? Do VW residents establish more or less numerous relationships than they do in the RW?<sup>22</sup> To what extent are VW relationships driven by RW relationships?
5. **Economics and Money.** One of the most important modes of human and group interaction is bartering and exchange. Most VWs and games have vibrant in-world economies. Some economists<sup>23</sup> believe that much can be learned about RW economies through experimentation in VWs. In some cases, virtual currency can be exchanged for RW currency (a practice known as Real Money Trade, or RMT), either through legitimate means allowed by the game vendor (e.g., the Linden dollar<sup>24</sup>), or through underground economies prohibited by the game vendor.<sup>25</sup> The line between virtual and real continues to blur as some countries deal with use of virtual currencies for RW goods and services.<sup>26</sup> Do certain economic decisions or activities vary depending on the culture or nationality of the user? Does handling of VW currency vary depending upon the RW culture of the user? What inferences can be drawn about the RW individual based on their treatment of VW goods and currencies?

## Culture

6. **Cultural Differences.** Very little research has been done to date comparing the similarities and differences in motivation, usage patterns, and behaviors of VW users across multiple cultures. Most of the published literature has concentrated on US or Western audiences<sup>27</sup>, or has ignored national and cultural factors so that the subject population of the study is not reported. Market studies of game growth in Asia, the Middle East, and elsewhere are starting to emerge,<sup>28</sup> but these are largely concentrating on predicting the growth in number of players over time rather than examining any social or behavioral characteristics of worldwide gamers. The Reynard program is interested in understanding possible cultural differences in VW usage, and encourages researchers to study non-U.S.-based players. Sources of data regarding non-U.S.-based players may be obtained via a variety of methods.

<sup>22</sup> Ducheneaut, N., Yee, N., Nickell, E., and Moore, R.J. (2006). "Alone Together? Exploring the Social Dynamics of Massively Multiplayer Games." In *Proceedings on human factors in computing systems CHI 2006*, pp.407-416. April 22-27, Montreal, PQ, Canada

<sup>23</sup> Castronova, Edward. "On the Research Value of Large Games: Natural Experiments in Norrath and Camelot". CESifo Working Paper no 1621, December 2005.

<sup>24</sup> [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=875571](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=875571)

<sup>25</sup> <http://secondlife.com/whatis/economy-market.php>

<sup>26</sup> E.g. <http://www.igxe.com/>

<sup>27</sup> For example, [http://online.wsj.com/public/article/SB117519670114653518-FR\\_svDHxRtxkvNmGwwpouq\\_hl2g\\_20080329.html?mod=rss\\_free](http://online.wsj.com/public/article/SB117519670114653518-FR_svDHxRtxkvNmGwwpouq_hl2g_20080329.html?mod=rss_free)

<sup>28</sup> E.g., Williams, D., N. Yee & S. Caplan (2008). Who Plays, How Much, and Why? A Behavioral Player Census of a Virtual World. *Journal of Computer Mediated Communication*, 13(4), 993-1018.

E.g. "Online Game Market" by DFC Intelligence, <http://www.dfciint.com/wp/?p=41>.

Given the stated goals of the Reynard program, researchers must take care to protect the privacy of human subjects. See the section “Civil Liberties and Privacy Protection Measures” for more information.

### **Additional Guidelines**

Regardless of the research topic, proposers should demonstrate their knowledge of the VW under study and its suitability for answering the proposed research questions. For example, if a proposer hypothesizes that use of gestures in the VW will be indicative of some RW characteristic, the VW or VWs proposed for study must allow a sufficiently rich choice of avatar gestures.

Proposers should describe, to the extent that the information is known, the base RW demographics of the VW populations being researched.

Proposers should also consider study of behavioral indicators across a demographically heterogeneous set of VWs as opposed to a single demographically homogeneous VW. If VW behavior is influenced by RW characteristics, might some of these behavioral indicators be observable across different VWs?

Proposers should also consider study of VWs that have a considerable concentration of non-US players. Proposals that examine VWs whose player populations are primarily US-based will receive lower evaluation ratings.

Proposers should plan to examine a minimum of 4 RW characteristics. Submissions that propose to study fewer than 4 RW characteristics will be rejected.

### **Out of Scope**

The following topics are considered out-of-scope for the Reynard research program:

1. Large investments in construction of new VWs<sup>29</sup>.
2. Development of new interface mechanisms, such as hardware peripherals that are alternatives to the keyboard and mouse.
3. Research on PC, console, or mobile platform improvements for VWs.
4. Enhancing the game or VW experience through use of artificial intelligence or improved graphics.
5. New VW software applications.
6. VW software architectures.
7. Study of the impact of the VW environment on RW attitudes, beliefs, and behaviors.

### **Acceptable Research Methodologies**

A variety of research methods are used in the social sciences, each with its relative strengths and weaknesses. Researchers may use one or more of these traditional research methods, but must specify in their proposal how they intend to address the weaknesses of their chosen method. One technique for dealing with methodological limitations is to employ a variety of complementary

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<sup>29</sup> Construction of a small stand-alone VW may be acceptable for a controlled laboratory experiment, if this is necessitated by the research questions being pursued. However, IARPA is not interested in funding large-scale MMOG development efforts for research purposes, such as described here:  
[http://www.wired.com/gaming/gamingreviews/magazine/16-04/pl\\_games](http://www.wired.com/gaming/gamingreviews/magazine/16-04/pl_games)

methods. Since inference of RW characteristics is a goal of the program, it is important that researchers validate the RW characteristics of their subjects.

Examples of acceptable research methodologies include but are not limited to:

1. Ethnographic methods, such as participant observation or interviews, in the VW
2. Experimental studies in the VW
3. Experimental studies in a Real-World laboratory environment with a small stand-alone VW
4. Analysis of log data from a VW
5. Large-scale survey research
6. Case Studies

The research teams receiving awards will be expected to provide their own laboratory facilities, virtual or real, as required to conduct studies.

Proposals employing techniques such as observational studies, experimental studies, survey research, or case studies should specify the number of human subjects that will be used in the study. Studies employing log data should specify the number of unique characters and/or end-users (these might be different) of the VW and the length of the data gathering period.

Study sample size should be sufficiently large to allow for valid statistical analysis. Furthermore, VWs pose a unique challenge to social science research in that a single real-world individual may participate multiple times in a single study via the use of multiple avatars (“experiment-farming”<sup>30</sup>). Researchers should address how they intend to control for this phenomenon.

All proposals **must** employ quantitative research methods. Qualitative methods may be used as an adjunct, to inform the direction of the quantitative research, or to help interpret the results of the quantitative research.

All data gathered by researchers must be obtained in accordance with U.S. laws and in compliance with the End User License Agreement, Terms of Service, and Privacy Policy of the VW being studied. See the section on Civil Liberties and Privacy Protection Measures for more details.

Studies using log data must include appropriate techniques for safeguarding Personally Identifiable Information (PII), including avatar names.<sup>31</sup> Offerors must show that their proposed technique(s) will include appropriate protections. Offerors should also address how they intend to safeguard data sets from accidental release or malicious intrusions.

IARPA intends to engage the National Institute of Standards and Technology (NIST) as a neutral third-party who will provide independent technical assessment and feedback to the Reynard Program Manager regarding research methods and data analysis techniques. This Assessment Team will be comprised of individuals with expertise in social science research methods and statistical analysis. The Assessment Team will accompany the Program Manager on all site visits and will attend all program reviews and program workshops. The Assessment Team will require access to research designs, data gathered for the research, and the analyses generated from the

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<sup>30</sup> E.g., <http://metanomics.net/13-mar-2008/trust-second-life>

<sup>31</sup> While most avatar names provide a good level of anonymity, some individuals in certain virtual worlds have become well-known by their avatars, and are connected with a known real-world person. The privacy of RW individuals participating in research studies must be protected.

research. All materials will be retained by the Assessment Team for no longer than 12 months after the conclusion of the Period of Performance for the contract. The Assessment Team will employ primarily inspection methods to the materials, but might re-analyze data in some cases.

**IARPA personnel will not receive any gathered data from researchers, nor provide any VW data for analysis.**

### **Civil Liberties and Privacy Protection Measures**

IARPA, and research funded by IARPA, must comply with all federal rules and regulations for research on human subjects<sup>32</sup>, the privacy of U.S. persons as outlined in EO 12333, and other laws pertinent to research activities. Researchers must specify how they will address the following:

1. Depending upon the study methodology, review and approval of the research method with their local Institutional Review Board<sup>33</sup>, as well as headquarters-level human subjects regulatory review and approval by the DoD Contracting Agent (see Section VI.B.5 of this BAA for more information).
2. Depending upon the study methodology, informed consent must be obtained when data are acquired through intervention or interaction with an individual.<sup>34</sup> (see also 32 CFR 219.116)<sup>35</sup>
3. Techniques that will be employed to adequately protect privacy and confidentiality<sup>36</sup>.
4. Compliance with the End User License Agreement (EULA), Terms of Service (ToS), and Code of Conduct (CoC) specified by the vendor of the VW being studied. Proposers are required to sign a statement that they have read and will comply with the EULA, ToS, and CoC. See Appendix 1 for the format of the required signed statement.
5. If the research method being proposed by the researcher appears inconsistent with some section of the EULA, ToS, or CoC, the researcher must provide written evidence that they have received a lawful and effective waiver from the VW vendor.

The IARPA Reynard Program Manager, in consultation with the ODNI Civil Liberties and Privacy Office, will review research plans and progress on a minimum of an annual basis, with particular attention to the adequacy of the researchers' ongoing civil liberties and privacy protection measures.

IARPA reserves the right to reject proposals that do not adequately address the safeguarding of privacy of human subjects.

### **I.B. Program Milestones and Metrics**

The Government will use the following Program Milestones and Metrics to evaluate the effectiveness of proposed solutions in achieving the stated program objectives, and to determine whether satisfactory progress is being made to warrant continued funding of the program. These metrics are intended to bound the scope of effort, while affording maximum flexibility, creativity, and innovation in proposing solutions to the stated problem.

<sup>32</sup> Code of Federal Regulations , Title 45 — Public Welfare, Department of Health and Human Services , Part 46 Protection of Human Subjects. <http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.htm>

<sup>33</sup> For example, <http://www.nsf.gov/bfa/dias/policy/hsfaqs.jsp>

<sup>34</sup> <http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.htm#46.102>

<sup>35</sup> <http://www.dtic.mil/biosys/downloads/32cfr219.pdf>

<sup>36</sup> See <http://www.hhs.gov/ohrp/humansubjects/guidance/ictips.htm>

The Reynard program will be structured into two 18-month phases. Performance against the Phase 1 metrics listed below will be a key factor in determining whether a performer will continue on to Phase 2.

The primary output of the funded research projects is expected to be behavioral indicators that are quantitative statements regarding RW characteristics of the user<sup>37</sup>, based on VW cues derived from the research areas of interest<sup>38</sup>. For example, a behavioral indicator may state: “In EVE® Online, across all servers, 90% of the users who display a Russian flag in their user profile are RW Russian.” Each research team is expected to identify behavioral indicators for at least four RW characteristics. Research teams may continue to address the same RW characteristics in Phase 2, or may add new RW characteristics to the research.

The VW behavioral indicators must attain a minimum level of probability with respect to RW characteristics. In the example in the paragraph above, the behavioral indicator has a probability 0.90. The target probability values for Phase 1 and Phase 2 are shown in the table below.

#### Target Metrics

| RW Characteristic <sup>39</sup>           | Target Minimum Probability Value: Phase 1 | Target Minimum Probability Value: Phase 2 |
|---|---|---|
| Gender                                    | 0.75                                      | 0.90                                      |
| Approximate Age (minor/young adult/older) | 0.70                                      | 0.85                                      |
| All other RW Characteristics              | 0.60                                      | 0.75                                      |

Performers should also report on the confidence limits associated with the estimated probabilities.

In order to increase the likelihood that the above metrics will be met, several interim milestones are outlined below. The intent of these interim milestones is to provide a means for the program manager and program advisors to assess progress toward meeting the major program milestones and to enable course correction if necessary. Offerors are expected to address each of these milestones in their proposals, and provide specific metrics in their proposals, at the 6-month interval points that will enable the program manager to assess their progress. Offerors are also encouraged to propose additional interim milestones that can be used to assess progress toward the program goals.

| Months after Kickoff | Milestone description | Metric | Intent of Milestone |
|----------------------|-----------------------|--------|---------------------|
|----------------------|-----------------------|--------|---------------------|

<sup>37</sup> Such as gender, approximate age (child/adult), economic status (low/middle/upper), educational level (primary/secondary/college), profession, ideology or “world view,” degree of influence, “digital native” vs. “digital immigrant,” approximate physical geographic location, native language, and culture (e.g., Western, Asian, Middle Eastern, Russian)

<sup>38</sup> Avatar & representation, communication, things that avatars do, group formation & dynamics, money & economics, and cultural differences

<sup>39</sup> The table is set up to show the different target values for different types of RW characteristics, and is not meant to imply that proposals that address gender or age are more or less desirable. However, it is anticipated that these 2 RW characteristics will be easier to empirically determine, and so have been set with higher target values.

|           |   |   |   |
|-----------|---|---|---|
| 1 month   | A. Phase 1 kickoff workshop with all Principal Investigators and Key Personnel                      | Attendance by Principal Investigators and Key Personnel   | Introduce research teams to each other, communicate program manager vision and expectations, presentation by each team of their research plans for Phase 1  |
| 6 months  | B. Site visit 1   | a. Attendance by Principal Investigators and Key Personnel<br>b. Achievement of metrics proposed by research teams  | Assess progress of research based on research team specific metrics   |
| 6 months  | C. Pilot test by performer of experimental methodology and/or data analysis tools for Phase 1 study | Report on pilot test results  | Assess likelihood of successful completion of data collection and data analysis by the Principal Investigator's Meeting date  |
| 12 months | D. Site visit 2   | a. Attendance by Principal Investigators and Key Personnel<br>b. Achievement of metrics proposed by research teams  | Assess progress of research based on research team specific metrics   |
| 16 months | E. Reynard Program Principal Investigator's Meeting – Phase 1                                       | a. Attendance by Principal Investigators and Key Personnel<br>b. Completion of Data Collection & Analysis<br>c. Preliminary report of research results, including behavioral indicators<br>d. Data sets provided to Validation Team | Performers will present preliminary findings from their completed research data collection and analysis. Researchers will be expected to have proved or disproved their hypotheses. Performers will document research findings in the format of a behavioral indicator with quantitative measures. Behavioral indicators will be reported against the target metrics. Results will be a key factor in determining whether a performer continues to Phase 2. |
| 18 months | F. <b>Project Research Results Final Report - Phase 1</b>   | a. Conclusive quantitative research results<br>b. Updated/ revised hypothesis,  | a. Performers will formally document findings of their completed research project, along with programmatic closeout (if necessary) and  |

|           |   |   |   |
|-----------|---|---|---|
|           |   | updated/ revised methodology for Phase 2  | financial reporting.<br>b. All research teams proceeding to Phase 2 should propose any changes to path forward for Phase 2 based on lessons learned from Phase 1.   |
| 19 months | G. Phase 2 kickoff workshop with all Principal Investigators and Key Personnel                      | Attendance by Principal Investigators and Key Personnel   | Communicate program manager vision and expectations, presentation by each team of their research plans for Phase 2  |
| 24 months | H. Site visit 3   | a. Attendance by Principal Investigators and Key Personnel<br>b. Achievement of metrics proposed by research teams  | Assess progress of research based on research team specific metrics   |
| 24 months | I. Pilot test by performer of experimental methodology and/or data analysis tools for Phase 2 study | Report on pilot test results  | Assess likelihood of successful completion of data collection and data analysis by the Principal Investigator's Meeting date  |
| 30 months | J. Site visit 4   | a. Attendance by Principal Investigators and Key Personnel<br>b. Achievement of metrics proposed by research teams  | Assess progress of research based on research team specific metrics   |
| 34 months | K. Reynard Program Principal Investigator's Meeting – Phase 2                                       | a. Attendance by Principal Investigators and Key Personnel<br>b. Completion of Data Collection & Analysis<br>c. Preliminary report of research results, including behavioral indicators<br>d. Data sets provided to | Performers will present preliminary findings from their completed research data collection and analysis. Researchers will be expected to have proved or disproved their hypotheses. Performers will document research findings in the format of a behavioral indicator with quantitative measures. Behavioral indicators will be reported against the target metrics. |

|           |   |  |  |
|-----------|---|--|--|
|           |   | Validation Team                                |  |
| 36 months | <b>L. Project<br/>Research<br/>Results Final<br/>Report –<br/>Phase 2</b> | Conclusive<br>quantitative<br>research results | Performers will formally<br>document findings of their<br>completed research project,<br>along with programmatic<br>closeout and financial<br>reporting. |

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World of Warcraft™ is a trademark of Blizzard Entertainment

Maple Story™ is a trademark of NEXON America Inc. and NEXON Corporation

EVE® Online is a registered trademark of CCP hf

## **II. AWARD INFORMATION**

The Reynard program is envisioned as a 3-year effort that will begin in the fourth quarter of Fiscal Year 2009. Phase 1 of the program will be the Base Period of the contract and will last 18 months. Phases 2 will be an Option Period of 18 months. The preliminary report of research results for the Base Period will be at 16 months. Work may continue during the remaining 2 months of the Base Period, but based on the work accomplished during the first 16 months, the Government will determine whether to exercise the Option Period.

Subject to the availability of funds, participants in the Option Period will be those teams that have made significant progress in the Base Period and have correctly understood and contributed to the overarching goals of the Program. Teams that fail to make sufficient progress in achieving Phase 1 metrics will not be invited to continue with the Program.

Multiple awards are anticipated. The amount of resources made available under this BAA will depend on the quality of the proposals received and the availability of funds.

The Government reserves the right to select for negotiation all, some, one, or none of the proposals received in response to this solicitation, and to make awards without discussions with offerors. The Government also reserves the right to conduct discussions if the Source Selection Authority determines them to be necessary. If warranted, portions of resulting awards may be segregated into pre-priced options. If the proposed effort is inherently divisible and nothing is gained from the aggregation, offerors should consider submitting it as multiple independent efforts. Additionally, IARPA reserves the right to accept proposals in their entirety or to select only portions of proposals for award. In the event that IARPA desires to award only portions of a proposal, negotiations may be opened with that offeror. The Government reserves the right to fund proposals in phases with options for continued work at the end of one or more of the phases.

Awards under this BAA will be made to offerors on the basis of the evaluation criteria listed below in Section V.A, Program balance, and availability of funds. Proposals identified for negotiation may result in a procurement contract.

### **III. ELIGIBILITY INFORMATION**

#### **III.A. Eligible Applicants**

All responsible sources capable of satisfying the Government's needs may submit a proposal. Historically Black Colleges and Universities (HBCUs), Small Businesses, Small Disadvantaged Businesses and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals; however, no portion of this announcement will be set aside for these organizations' participation due to the impracticality of reserving discrete or severable areas of this research for exclusive competition among these entities. Other Government Agencies, Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARC)s, and any organizations that have a special relationship with the Government, including access to privileged and/or proprietary information, or access to Government equipment or real property, are **not** eligible to submit proposals under this BAA or participate as team members under proposals submitted by eligible entities.

Foreign participants and/or individuals may participate to the extent that such participants comply with any necessary Non-Disclosure Agreements, Security Regulations, Export Control Laws, and other governing statutes applicable under the circumstances.

#### **III.A.1. Procurement Integrity, Standards of Conduct, Ethical Considerations, and Organizational Conflicts of Interest (OCI)**

“Organizational conflict of interest” means that because of other activities or relationships with other persons, a person is unable or potentially unable to render impartial assistance or advice to the Government, or the person’s objectivity in performing the contract work is or might be otherwise impaired, or a person has an unfair competitive advantage.

If a prospective offeror, or any of its proposed subcontractor teammates, believes that a potential conflict of interest exists or may exist (whether organizational or otherwise), the offeror should promptly raise the issue with IARPA and submit a waiver request by e-mail to the mailbox address for this BAA at [dni-iarpa-baa-09-05@ugov.gov](mailto:dni-iarpa-baa-09-05@ugov.gov). A potential conflict of interest includes but is not limited to any instance where an offeror, or any of its proposed subcontractor teammates, is providing either scientific, engineering and technical assistance (SETA) or technical consultation to IARPA. In all cases, the offeror shall identify the contract under which the SETA or consultant support is being provided. Without a waiver from the IARPA Director, neither an offeror, nor its proposed subcontractor teammates, can simultaneously provide SETA support or technical consultation to IARPA and compete or perform as a Performer under this solicitation.

All facts relevant to the existence of the potential conflict of interest, real or perceived, should be disclosed in the waiver request. The request should also include a proposed plan to avoid, neutralize or mitigate such conflict. The offeror shall certify that all information provided is accurate and complete, and that all potential conflicts, real or perceived, have been disclosed. It is recommended that an offeror submit this request as soon as possible after release of the BAA before significant time and effort are expended in preparing a proposal. If, in the sole opinion of the Government, after full consideration of the circumstances, the conflict situation cannot be resolved, the request for waiver will be denied, and any proposal submitted by the offeror will be withdrawn from consideration for award.

As part of their proposal, offerors who have identified any potential conflicts of interest shall include either an approved waiver signed by the IARPA Director or a copy of their waiver request. Otherwise, offerors should certify that neither they nor their subcontractor teammates have any potential conflicts of interest, real or perceived.

If, at any time during the solicitation or award process, IARPA discovers that an offeror has a potential conflict of interest, and no waiver request has been submitted by the offeror, IARPA reserves the right to immediately withdraw the proposal from further consideration for award.

### **III.B. U. S. Academic Organizations**

According to Executive Order 12333, as amended 28 June 2008, paragraph 2.7, “Elements of the Intelligence Community are authorized to enter into contracts or arrangements for the provision of goods or services with private companies or institutions in the United States and need not reveal the sponsorship of such contracts or arrangements for authorized intelligence purposes. Contracts or arrangements with academic institutions may be undertaken only with the consent of appropriate officials of the institution.”

It is highly recommended that offerors submit with their proposal a completed and signed Academic Institution Acknowledgement Letter for each U.S. academic organization that is a part of their team, whether the academic organization is serving in the role of prime, or a subcontractor or consultant at any tier of their team. A template of the Academic Institution Acknowledgement Letter is enclosed in this BAA at Appendix 4. It should be noted that the completed form must be signed by an appropriate senior official from the institution, typically the President, Chancellor, Provost, or other appropriately designated official. Note that this paperwork must be completed before IARPA can enter into any negotiations with any offeror when a U.S. academic organization is a part of its team.

### **III.C. Cost Sharing/Matching**

Cost sharing is not required and is not an evaluation criterion; however, it is encouraged where there is a reasonable probability of a potential commercial application related to the proposed research and development effort.

### **III.D. Other Eligibility Criteria**

#### **III.D.1. Collaborative Efforts**

Collaborative efforts/teaming among potential performers are strongly encouraged. The team should be multidisciplinary with personnel such as social scientists, computer scientists, statisticians, gaming and virtual world experts, and multi-cultural experts, as appropriate. Specific content, communications, networking, and team formation are the sole responsibility of the participants.

## **IV. APPLICATION AND SUBMISSION INFORMATION**

This notice constitutes the total BAA and contains all information required to submit a proposal. No additional forms, kits, or other materials are required.

### **IV.A. Content and Form of Proposal Submission**

#### **IV.A.1. Proposal Information**

Offerors are required to submit proposals by the time and date specified in section IV.B.1 in order to be considered during the initial round of selections. IARPA may evaluate proposals received after this date for a period up to one year from the date of initial posting on FedBizOpps. Selection remains contingent on availability of funds.

The typical proposal should express a consolidated effort in support of one or more related technical concepts or ideas. Disjointed efforts should not be included in a single proposal. Tasks in all proposals should be clearly differentiated and the Base and Option Period as well as tasks should be labeled plainly. Associated costs for each task should be specified.

Offerors should submit proposals for a Base Period of 18-months plus one 18-month Option Period. ***The preliminary report of research results for the Base Period will be made at the 16-month mark.*** Work may continue in the following two months but, based on the work accomplished in the first 16 months, the Government will determine whether to exercise the Option Period.

The Government intends to use employees of The MITRE Corporation, and Bluemont Technology & Research Inc. to assist in administering the evaluation of the proposals as well as to provide expert advice regarding portions of the proposals submitted to the Government. Booz Allen Hamilton will also provide logistical support in carrying out the evaluation process. These personnel will have signed and be subject to the terms and conditions of non-disclosure agreements. By submission of its proposal, an offeror agrees that its proposal information may be disclosed to employees of these organizations for the limited purpose stated above. If offerors do not send notice of objection to this arrangement, the Government will assume consent to the use of contractor support personnel in assisting the review of submittal(s) under this BAA.

Only Government personnel will make evaluations and award determinations under this BAA.

All administrative correspondence and questions regarding this solicitation should be directed by email to [dni-iarpa-baa-09-05@ugov.gov](mailto:dni-iarpa-baa-09-05@ugov.gov). Proposals must be mailed to the address provided in Section IV.B.2. Proposals may not be submitted by hand, fax or e-mail; any such proposals received in this manner will be disregarded. See below for proposal submission instructions.

Offerors must submit two hard copies and one soft copy of their proposals: one original hard copy with original signatures; one hard copy with original or copied signatures; and 1 electronic copy with Volume 1, Volume 2 and any permitted, additional information (.pdf format preferred) on a CD-ROM. Both hard copies and the CD must be clearly labeled with the following information: IARPA-BAA-09-05, offeror's organization, proposal title (short title recommended), and copy # of #.

The Government anticipates that proposals submitted under this BAA will be unclassified. No classified information will be accepted in response to this BAA.

#### **IV.A.2. Proposal Format**

All proposals must be in the format given below. Nonconforming proposals may be rejected without review. Proposals shall consist of two volumes: “Volume 1 -Technical and Management Proposal” and “Volume 2 - Cost Proposal”. All pages shall be printed on 8-1/2 by 11 inch paper with type not smaller than 12 point. Smaller font may be used for figures, tables and charts. The page limitation for full proposals includes all figures, tables, and charts. All pages must be numbered. Unnecessarily elaborate brochures or presentations beyond what is sufficient to present a complete and effective proposal are not acceptable and will be discarded without review.

Each proposal submitted in response to this BAA shall consist of the following:

##### **Volume 1 – Technical & Management Proposal**

- Section 1 - Cover Sheet & Transmittal Letter
- Section 2 – Summary of Proposal
- Section 3 – Detailed Proposal
- Section 4 – Additional Information

##### **Volume 2 – Cost Proposal**

- Section 1– Cover Sheet
- Section 2 – Detailed Estimated Cost Breakdown

Volume I, Technical and Management Proposal, may include an attached bibliography of relevant technical papers or research notes (published and unpublished), which document the technical ideas and approach on which the proposal is based. Copies of not more than three relevant papers can be included with the submission. The submission of other supporting materials along with the proposal is strongly discouraged and will not be considered for review. Except for the cover sheet, transmittal letter, signed Academic Institution Acknowledgement Letter(s) if required, OCI waiver/certification, bibliography, and relevant papers, Volume I shall not exceed 30 pages. Any pages exceeding this limit will be removed and not considered during the evaluation process. Full proposals must be accompanied by an official transmittal letter. All full proposals must be written in English.

#### **IV.A.2.a. Format of Volume I, Technical and Management Proposal {Limit of 30 pages}**

##### Volume I, Section I. Cover Sheet & Transmittal Letter

A. Cover sheet (See Appendix 2 for sample cover sheet for the Technical and Management Volume)

- (1) BAA number
- (2) Research areas – more than one research area may be listed (Avatars & Representation, Communication, Things that Avatars Do, Group Formation & Dynamics, Money & Economics, Cultural Differences)
- (3) Research Methodologies - more than one may be listed (e.g., Observational, Experimental, Log Analysis, Survey, Case Study, Other (describe))
- (4) Lead organization submitting proposal

- (5) Type of business, selected among the following categories: "LARGE BUSINESS", "SMALL DISADVANTAGED BUSINESS", "OTHER SMALL BUSINESS", "HBCU", "MI", "OTHER EDUCATIONAL", OR "OTHER NONPROFIT"
- (6) Contractor's reference number (if any)
- (7) Other team members (if applicable) and type of business for each
- (8) Proposal title
- (9) Technical point of contact to include: title, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available)
- (10) Administrative point of contact to include: title, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available), total funds requested from IARPA, and the amount of cost share (if any)
- (11) OCI affirmation [see Section III.A.1] included? Yes/No
- (11a) If no, reason for not including?
- (12) Are one or more U.S. Academic Organizations part of your team? Yes/No
- (12a) If yes, are you including an Academic Institution Acknowledgement Statement with your proposal for each Academic Organization that is part of your team? Yes/No
- (13) Total funds requested (base plus options) from IARPA, and the amount of cost share (if any)
- (14) Date proposal was submitted.

B. Official Transmittal Letter.

Volume I, Section II. Summary of Proposal

Section II shall provide an overview of the proposed work as well as an introduction to the associated technical and management issues. This section shall contain a technical description of and technical approach to the research as well as a succinct portrayal of the uniqueness and benefits of the proposed work. It shall make the technical objectives clear and quantifiable and shall provide a project schedule with definite milestones. Offerors must address:

- A. **Innovative claims for the proposed research.** This section is the centerpiece of the proposal and should succinctly describe the uniqueness and benefits of the proposed approach relative to the current state-of-the-art alternate approaches.
- B. **Products, transferable technology, and deliverables associated with the proposed research** should be summarized. Measurable deliverables should be defined that will show progress toward achieving the stated Program Milestones. Deliverables should be specified at the points indicated in the table in Section I.B. and should be presented in a similar table format. Include in this section all proprietary claims to the results, prototypes, intellectual property, or systems supporting and/or necessary for the use of the research, results, and/or prototype. If there are no proprietary claims, this should be stated. Should no proprietary claims be made, Government rights will be unlimited.
- C. Summarize, in table form, **schedule and milestones for the proposed research, including estimates of cost for each deliverable**, delineated by the prime and major subcontractors, total cost and company cost share, if applicable. Measurable interim milestones should occur at the intervals as defined in Section I.B and should enable the program manager to assess the performer's progress toward meeting the phase 1 goals.

Additional interim management milestones are also highly encouraged at appropriate periodic intervals. Do not include proprietary information with the milestones.

- D. **Technical rationale, technical approach, and constructive plan** for accomplishment of technical goals in support of innovative claims and deliverables. (This section should be supplemented by a more detailed plan in Volume 1, Section III of the proposal.)
- E. General discussion of **related research** in this area.
- F. A clearly defined **organization chart** for the program team which includes the following required elements: (1) the organizational affiliation of each team member; (2) the teaming strategy among the team members, including team roles, (3) the unique and relevant capabilities of team members; (4) the tasks or contributions of team members; (5) the amount of effort to be expended by each person during each year; and (6) the country of citizenship of team members. Accompanying this chart, offerors will provide brief biographical sketches of key personnel and significant contributors and a detailed description of the roles that contributors (including Principal Investigator(s)) will play based on their qualifications and on their level of effort in each year of the Program. Discussion of the teaming strategy among team members shall be included. If the team intends to use consultants, they must be included in the organizational chart as well. Indicate if the person will be an “individual” or “organizational” consultant (that is, will the consultant represent himself/herself or his/her organization). In both cases, the organizational affiliation should be identified. The consultant should make a written commitment to be available to the team; the commitment should be attached to the Cost Volume. (Interested parties are encouraged to leverage personnel that are dedicated to BAA requirements no less than 10% of their time. If any participant is scheduled for less than 10% of his/her time, the offeror must provide a clear and compelling justification as to how benefit can be gained from that person’s participation at the specified level of effort.)

#### Suggested Organizational Chart Format

| Participants         | Org        | Role                    | Relevant Capabilities     | Task(s) or Contributions     | Time Commitment | Citizenship |
|----------------------|------------|-------------------------|---------------------------|------------------------------|-----------------|-------------|
| John Buck            | ABC Univ   | PI/Key Person           | Virtual Ethnologist       | Defines BIs, Direct Research | 25%             | USA         |
| Mary Smith           | XYZ Inc    | Key Person              | Experimental Psychologist | Experimental Design          | 25%             | GBR         |
| Jane Doe             | MMORPG Inc | Significant Contributor | Game/VW Design            | Data Collection, Analysis    | 20%             | USA         |
| Doctoral Candidate 1 | ABC Univ   | Contributor             | Statistical Programmer    | Analysis                     | 25%             | Singapore   |
| Abby Normal          | Big VW Inc | Co-PI/Key Person        | And so forth...           | Virtual Lab                  | 30%             | USA         |

#### Volume I, Section III. Detailed Proposal Information

This section of the proposal shall provide the detailed discussion of the proposed research. Specific attention must be given to addressing both the risks and payoffs of the proposed research and why it is desirable for IARPA to pursue. This part shall provide:

- A. **Statement of Work (SOW)** - In plain English, clearly define the technical tasks and subtasks to be performed, their durations, and dependencies among them. For each task and subtask, provide:

- A general description of the objective;
- A detailed description of the approach to be taken, developed in an orderly progression and in enough detail to establish the feasibility of accomplishing the goals of the task;
- Identification of the primary organization responsible for task execution (prime, sub-contractor, team member, by name, etc.);
- The exit criteria for each task/activity - a product, event or milestone that defines its completion.
- Definition of all deliverables (e.g., data, reports, software, etc.) to be provided to the Government in support of the proposed research tasks/activities.

*Note: The SOW should be developed so that the Base and Option Periods of the program are separately defined. Do not include any proprietary information in the SOW.*

At the end of this section, provide a Gantt chart, showing all the tasks and subtasks on the left with the performance period (in years/quarters) on the right. All milestones should be clearly labeled on the chart.

- B. **A detailed description of the objectives, scientific relevance, technical approach, and expected significance of the work.** The key elements of the proposed work should be clearly identified and related to each other. Proposals should clearly detail the technical method(s) and/or approach(es) that will be used to meet or exceed each program milestone and metric, and should provide ample justification as to why the proposed method(s)/approach(es) is/are feasible. Any anticipated risks should be described and possible mitigations proposed. General discussion of the problem without specific detail about the technical implementation will result in an unacceptable rating.
- C. **State of the Art.** Comparison with other ongoing research indicating advantages and disadvantages of the proposed effort.
- D. **Data Sources.** Identification and description of the VW or VWs to be studied and the RW subject population demographics being considered. Proposals should describe the capabilities and limitations of the target VWs that may enable or inhibit study of the research areas and demographics of interest.

Include the documentation required in Section VI.B.5 (Human Use) and, in addition, provide written verification that all data was lawfully obtained; and, where applicable, that the proposer has a license for use of the data that will cover the proposed activity. Proposers are required to sign a statement that they have read and will comply with the EULA, ToS, and CoC, as appropriate (see Appendix 1). Documentation must be well written and logical; claims for exemptions from Federal regulations for human subject protection must be accompanied by a strong defense of the claims. The Government reserves the right to reject a proposal if it does not appropriately address the data issues. The Human Use documentation and the written verification are not included in the total page count.

- E. **Description of the deliverables associated with the proposed research results, enhancing that of Volume 1 Section II. B.** Deliverables should be defined that show progress toward achieving the stated Program Milestones. Deliverables should be specified at months 6, 12, 16, and 18 for Phase 1, and at months 24, 30, 34, and 36 for Phase 2. See Section I.B for more information on Program Milestones. Describe the proposed approach to intellectual property rights, together with supporting rationale of why this approach offers the best value to the Government. This section should include a list of technical data, computer software, or computer software documentation associated with this research effort in which the Government will acquire less than unlimited rights. Should no proprietary claims be made, Government rights will be unlimited. See also Section VI.B.3. Intellectual Property.
- F. **Cost, schedule, and milestones** for the proposed research, including estimates of cost for each deliverable delineated by the primes and major sub-contractors, total cost, and any company cost share, if any. Where the effort consists of multiple portions that could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each. The milestones must not include proprietary information.
- G. **Previous Accomplishments.** Discussion of offeror's previous accomplishments and work in this or closely related research areas and how these will contribute to and influence the current work.
- H. **Facilities.** Description of the facilities that will be used for the proposed effort, including computational and experimental resources. Facilities may include both RW and VW laboratories.
- I. **Detailed description of the Management Plan.** The Management Plan should identify both the organizations and the individuals within those organizations that make up the team, and delineate the expected duties, relevant capabilities and task responsibilities of team members, and expected relationships among team members. The team should be multidisciplinary with personnel such as social scientists, computer scientists, statisticians, gaming and virtual world experts, and multi-cultural experts, as appropriate. Expected levels of effort (percentage time or fraction of an FTE) for all key personnel and significant contributors should be clearly noted. A description of the technical, administrative, and business structure of the team and the internal communications plan should be included. Project/function/sub-contractor relationships (including formal teaming agreements), Government research interfaces, and planning, scheduling, and control practices should be described. The team leadership structure should be clearly defined. Provide a brief biography of the key personnel (including alternates, if desired) who will be involved in the research along with the amount of effort to be expended by each person during the year. Participation by key personnel and significant contributors is expected to exceed 10% of their time. A compelling explanation of any variation from this figure is required.
- J. **Resource Share:** The type of support, if any, the offeror might request from the Government, such as facilities, equipment, or materials, or any such resources the offeror is willing to provide at no additional cost to the Government to support the research effort. Cost sharing is not required from offerors and is not an evaluation criterion, but is encouraged where there is a reasonable probability of a potential commercial application related to the proposed research and development effort.
- K. The names of other federal, state, or local agencies or other parties receiving the proposal and/or funding the proposed effort. If none, so state.

#### Volume I, Section IV. Additional Information

Offerors should include a brief bibliography of relevant technical papers and research notes (published and unpublished) which document the technical ideas on which the proposal is based. Copies of not more than three (3) relevant papers may be included in the submission. This information does not contribute to the page count of Volume I.

It is highly recommended that offerors submit with their proposal a completed and signed Standard Form 328 (SF328), Certificate Pertaining to Foreign Interests, hereafter referred to as the Foreign Ownership & Controlling Interests (FOCI) document, for each entity that is part of their team, whether serving in the role of prime, subcontractor, or consultant at any tier of their team. The FOCI document, Standard Form 328, is found at <https://www.dss.mil/GW/ShowBinary/DSS/isp/foci/documents/sf328.pdf>. Note that the SF328 **must** be completed before IARPA can enter into any negotiations with any offeror.

#### **IV.A.2.b. Format of Volume II, Cost Proposal – {No Page Limit}**

##### Volume II, Section I. Administrative

- A. Cover sheet (See Appendix 3 for sample cover sheet for the Cost Volume)
  - (1) BAA number;
  - (2) Research areas – more than one research area may be listed (Avatars & Representation, Communication, Things that Avatars Do, Group Formation & Dynamics, Money & Economics, Cultural Differences);
  - (3) Research Methodologies - more than one may be listed (e.g., Observational, Experimental, Log Analysis, Survey, Case Study, Other (describe);
  - (4) Lead organization submitting proposal;
  - (5) Type of business, selected among the following categories: “LARGE BUSINESS”, “SMALL DISADVANTAGED BUSINESS”, “OTHER SMALL BUSINESS”, “HBCU”, “MI”, “OTHER EDUCATIONAL”, OR “OTHER NONPROFIT”;
  - (6) Contractor’s reference number (if any);
  - (7) Other team members (if applicable) and type of business for each;
  - (8) Proposal title;
  - (9) Technical point of contact to include: title, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available);
  - (10) Administrative point of contact to include: title, last name, first name, street address, city, state, zip code, telephone, fax (if available), and electronic mail (if available);
  - (11) Award instrument requested: cost-plus-fixed-fee (CPFF), cost-contract—no fee, cost sharing contract – no fee, or other type of procurement contract (*specify*);
  - (12) Place(s) and period(s) of performance;
  - (13) Total proposed cost separated by basic award and option (if any);
  - (14) Name, address, and telephone number of the offeror’s Defense Contract Management Agency (DCMA) administration office or equivalent cognizant contract administration entity (*if known*);
  - (15) Name, address, and telephone number of the offeror’s Defense Contract Audit Agency (DCAA) audit office or equivalent cognizant contract audit entity (*if known*);
  - (16) Date proposal was prepared;
  - (17) DUNS number;
  - (18) TIN number; and

- (19) Cage Code;
- (20) Proposal validity period (minimum 90 days).

## Volume II, Section II. Detailed Cost Breakdown

- (1) Total program cost broken down by major cost items (direct labor, including labor categories; subcontracts; materials; other direct costs, overhead charges, etc.) and further broken down task and phase
- (2) Major program tasks by fiscal year
- (3) An itemization of major subcontracts and equipment purchases
- (4) An itemization of any information technology (IT) purchase<sup>40</sup>;
- (5) A summary of projected funding requirements by month
- (6) The source, nature, and amount of any industry cost-sharing
- (7) Identification of pricing assumptions of which may require incorporation into the resulting award instrument (e.g., use of Government Furnished Property/Facilities/Information, access to Government Subject Matter Expert/s, etc.)

The prime contractor is responsible for compiling and providing all subcontractor proposals for the Procuring Contracting Officer (PCO). Subcontractor proposals should include Interdivisional Work Transfer Agreements (ITWA) or similar arrangements. Where the effort consists of multiple portions which could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each. NOTE: for IT and equipment purchases, include a letter stating why the offeror cannot provide the requested resources from its own funding.

Supporting cost and pricing information must be provided in sufficient detail to substantiate the summary cost estimates in Volume 1 above. Include a description of the method used to estimate costs and supporting documentation. Note: “cost or pricing data” shall be required if the offeror is seeking a total procurement contract award of \$650,000 or greater unless the offeror requests an exception from the requirement to submit cost or pricing data. All proprietary subcontractor proposal documentation, prepared at the same level of detail as that required of the prime, shall be made immediately available to the Government, upon request, under separate cover (i.e., mail, electronic/email, etc.), either by the offeror or by the subcontractor organization.

Consultant letter(s) of commitment should be attached to the Cost Volume and estimated costs should be included in the cost estimates.

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<sup>40</sup> IT is defined as “any equipment, or interconnected system(s) or subsystem(s) of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the agency. (a) For purposes of this definition, equipment is used by an agency if the equipment is used by the agency directly or is used by a contractor under a contract with the agency which – (1) Requires the use of such equipment; or (2) Requires the use, to a significant extent, or such equipment in the performance of a service or the furnishing of a product. (b) The term “information technology” includes computers, ancillary, software, firmware and similar procedures, services (including support services), and related resources. (c) The term “information technology” does not include – (1) Any equipment that is acquired by a contractor incidental to a contract; or (2) Any equipment that contains imbedded information technology that is used as an integral part of the product, but the principal function of which is not the acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. For example, HVAC (heating, ventilation, and air conditioning) equipment, such as thermostats or temperature control devices, and medical equipment where information technology is integral to its operation, is not information technology.”

## **IV.B. Submission Details**

### **IV.B.1. Proposal Due Date**

Proposals must be received at or before 5:00pm ET on June 16, 2009, in order to be considered during the initial round of selections.

### **IV.B.2. Proposal Delivery**

The full proposal (one original hard copy with original signatures; one hard copy with original or copied signatures; and 1 electronic copy with Volume I, Volume II and any permitted, additional information (.pdf format preferred) on a CD-ROM) must be delivered to:

ODNI/IARPA  
Attention: Dr. Rita Bush  
Gate 5  
1000 Colonial Farm Road  
McLean, VA 22102

**IMPORTANT:** Deliveries must be made using one of the following commercial delivery services: UPS, FedEx or DHL; **NOT** United States Postal Service (USPS). Failure to use one of these methods may jeopardize or delay delivery of proposals. Note that under certain “same day delivery” options, UPS, FedEx and DHL may subcontract out their services to local delivery companies. These smaller local delivery companies will not be allowed access to this address to make deliveries. For this reason and other unforeseen situations, offerors should track their submission to ensure final delivery. Deliveries by hand, e-mail or fax will not be accepted.

**Proposers must ensure the timely delivery of their proposals.** The mail facility closes at 5 p.m.ET; delivery cannot take place after this time until the following day. IARPA will generally acknowledge receipt of complete submissions via e-mail within 24-48 hours and assign control numbers that should be used in all further correspondence regarding proposals. To be certain of delivery, however, it is suggested that a tracking number be obtained from the carrier.

Offerors are required to submit proposals by the time and date specified in the BAA in order to be considered during the initial round of selections. IARPA may evaluate proposals received after this date for a period of up to one year from the date of initial posting on FedBizOpps. Selection remains contingent on availability of funds.

Failure to comply with the submission procedures may result in the submission not being evaluated.

## **V. APPLICATION REVIEW INFORMATION**

### **V.A. Evaluation Criteria**

The criteria to be used to evaluate and select proposals for this program are described in the following paragraphs. Each proposal will be evaluated on the merit and relevance of the specific proposal as it relates to the program rather than against other proposals for research in the same general area as no common work statement exists. Specifics about the evaluation criteria are provided below, in descending order of importance.

#### **V.A.1. Overall Scientific and Technical Merit**

Overall scientific and technical merit of the proposal is substantiated, including unique and innovative methods, approaches, and/or concepts. The technical approach is credible, and includes a clear assessment of primary risks and a means to address them. The offeror can expect the selection process to include an assessment of the proposal against the state-of-the-art.

#### **V.A.2. Effectiveness of Proposed Work Plan**

The feasibility and likelihood of the proposed approach for satisfying established program milestones and metrics is explicitly described and clearly substantiated along with risk mitigation strategies for achieving stated milestones and metrics. The proposal reflects a mature and quantitative understanding of the program milestones and metrics and the statistical confidence with which they may be measured. The offeror may also propose additional milestones and metrics as needed. Any such milestones and metrics are clear and well-defined with a logical connection to enabling offeror decisions and/or Government decisions. The schedule to achieve the milestones is realistic and reasonable.

The role and relationships of prime/subs is clearly delineated with all participants fully documented. Work plans demonstrate the ability to provide full Government visibility into, and interaction with, key technical activities and personnel; and a single point of responsibility for contract performance. Work plans must also demonstrate that key personnel have sufficient time committed to the program to accomplish their described program roles.

The requirement for and the anticipated use or integration of Government Furnished Property (GFP) including all equipment, facilities, information, *etc.* is fully described including dates when such GFP, GFE, GFI or other similar government provided resources will be required.

The offeror's proposed intellectual property and data rights are consistent with the Government's need to be able to communicate program information across Government organizations and to support transition of the program to Intelligence Community users at a reasonable cost.

#### **V.A.3. Contribution and Relevance to Reynard Program Goals**

The Offeror describes how the proposed solution meets the letter and intent of the stated Reynard Program goals, and all elements within the proposal exhibit a comprehensive understanding of the problems, challenges, and goals. The offeror clearly addresses how the proposed effort will meet and progressively demonstrate progress to accomplishing Reynard Program goals. The proposed approach to intellectual property rights offers the best value to the Government.

#### **V.A.4. Relevant Experience and Expertise**

The offeror's capabilities, related experience, facilities, techniques, or unique combination of these which are integral factors for achieving the proposal's objectives; and qualifications, capabilities, and experience of the proposed principal investigator, team leader, and key personnel critical in achieving the proposal objectives, will all be evaluated. Time commitments of key personnel must be sufficient for their proposed responsibilities in the effort.

The multidisciplinary make-up of the team is especially important. Offerors should ensure that the team composition includes personnel such as social scientists, computer scientists, statisticians, gaming and virtual world experts, and multi-cultural experts, as appropriate.

#### **V.A.5. Cost Realism**

The proposed costs are reasonable, realistic, and affordable for the work proposed. Estimates are "realistic" when they are neither excessive nor insufficient for the effort to be accomplished. The proposal documents all anticipated costs including those of associate, participating organizations. The proposal demonstrates that the respondent has fully analyzed budget requirements and addressed resulting cost risks. All cost-sharing and leveraging opportunities have been explored and identified. Other sponsors who have funded or are funding this offeror for the same or similar efforts are identified. The Government shall evaluate how well all cost data is traceable and reconcilable.

IARPA recognizes that undue emphasis on cost may motivate offerors to offer low-risk ideas with minimum uncertainty and to staff the effort with junior personnel in order to be in a more competitive posture. IARPA discourages such cost strategies. Cost reduction approaches that will be received favorably include innovative management concepts that maximize direct funding for technology and limit diversion of funds into overhead.

*Note to offerors regarding the above evaluation criteria:*

Award(s) will be made to offerors on the basis of the evaluation criteria listed in Section V.A., Program balance, and the availability of funds. Award recommendations will not be made to offeror(s) whose proposal(s) are determined to be not selectable.

**OFFERORS ARE CAUTIONED THAT EVALUATION RATINGS MAY BE LOWERED AND/OR PROPOSALS REJECTED IF PROPOSAL PREPARATION AND SUBMITTAL INSTRUCTIONS ARE NOT FOLLOWED.**

#### **V.B. Review and Recommendation Process**

It is the policy of IARPA to ensure impartial, equitable, comprehensive proposal evaluations and to select the source (or sources) whose offer meets the Government's technical, policy, and programmatic goals. In order to provide the desired evaluation, qualified Government personnel will conduct reviews and (if necessary) convene panels of experts in the appropriate areas.

Proposals will only be evaluated against the criteria described under Section V.A above, and will not be evaluated against other proposals since they are not submitted in accordance with a common work statement. For evaluation purposes, a proposal is the document described in

“Application and Submission Information”, Section IV. Other supporting or background materials submitted with the proposal will be considered for the reviewer's convenience only and not considered as part of the proposal.

As noted above, the Government intends to use employees of Bluemont Technology and Research Inc. to assist in administering the evaluation of the proposals as well as The MITRE Corporation to provide expert advice regarding portions of the proposals submitted to the Government. Booz Allen Hamilton will also provide logistical support in carrying out the evaluation process. These personnel will have signed and be subject to the terms and conditions of non-disclosure agreements. By submission of its proposal, an offeror agrees that its proposal information may be disclosed to employees of these organizations for the limited purpose stated above. If you do not send notice of objection to this arrangement, the Government will assume your consent to the use of contractor support personnel in assisting the review of your submittal(s) under this BAA. Only Government personnel will make evaluations and award determinations under this BAA.

It is the policy of IARPA to treat all proposals as competitive information and to disclose their contents only for the purpose of evaluation. Proposals will not be returned. Upon completion of the source selection process, the original of each proposal received will be retained at IARPA and all other non-required copies will be destroyed. A certification of destruction may be requested, provided that the formal request is sent to IARPA via email to [dni-iarpa-baa-09-05@ugov.gov](mailto:dni-iarpa-baa-09-05@ugov.gov) within 5 days after notification of proposal review results.

## **VI. AWARD ADMINISTRATION INFORMATION**

### **VI.A. Award Notices**

As soon as the evaluations are complete, the offeror will be notified by the Program Manager that 1) the proposal has been selected for funding pending contract negotiations, or 2) the proposal has not been selected for funding. The Government Contracting Officer will send similar notification to the Contracting Office/Administrative Point of Contact of the lead organization.

### **VI.B. Administrative and National Policy Requirements**

#### **VI.B.1. Security**

The Government anticipates that proposals submitted under this BAA will be unclassified. No classified information will be accepted in response to this BAA.

#### **VI.B.2. Proprietary Data**

It is the policy of IARPA to treat all proposals as competitive information, and to disclose their contents only for the purpose of evaluation.

All proposals containing proprietary data should have the cover page and each page containing proprietary data clearly marked as containing proprietary data. It is the offeror's responsibility to clearly define to the Government what is considered proprietary data.

#### **VI.B.3. Intellectual Property**

##### **VI.B.3.a. Procurement Contract Offerors**

##### **VI.B.3.a.i. Noncommercial Items (Technical Data and Computer Software)**

Offerors responding to this BAA requesting a procurement contract to be issued under the FAR shall identify all noncommercial technical data and noncommercial computer software that it plans to generate, develop, and/or deliver under any proposed award instrument in which the Government will acquire less than unlimited rights, and to assert specific restrictions on those deliverables. In the event that offerors do not submit such information, the Government will assume that it automatically has "unlimited rights" to all noncommercial technical data and noncommercial computer software generated, developed, and/or delivered under any award instrument unless it is substantiated that development of the noncommercial technical data and noncommercial computer software occurred with mixed funding. If mixed funding is anticipated in the development of noncommercial technical data and noncommercial computer software generated, developed, and/or delivered under any award instrument then offerors should identify the data and software in question, as subject to Government Purpose Rights (GPR)<sup>41</sup>. The

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<sup>41</sup> "Government purpose rights" means the rights to use, modify, reproduce, release, perform, display, or disclose technical data and computer software within the Government without restriction; and to release or disclose technical data and computer software outside the Government and authorize persons to whom release or disclosure has been made to use, modify, reproduce, release, perform, display, or disclose that data or software for any United States Government purpose. United States Government purposes include

Government will automatically assume that any such GPR restriction is limited to a period of five (5) years , at which time the Government will acquire “unlimited rights” unless the parties agree otherwise. Offerors are advised that the Government will use this information during the source selection evaluation process to evaluate the impact of any identified restrictions and may request additional information from the offeror, as may be necessary, to evaluate the offeror’s assertions. If no restrictions are intended, then the offeror should state “NONE.”

A sample list for complying with this request is as follows:

| NONCOMMERCIAL   |                     |                          |                                       |
|---|---------------------|--------------------------|---------------------------------------|
| Technical Data, Computer Software To be Furnished With Restrictions | Basis for Assertion | Asserted Rights Category | Name of Person Asserting Restrictions |
| (LIST)  | (LIST)              | (LIST)                   | (LIST)                                |

#### **VI.B.3.a.ii. Commercial Items (Technical Data and Computer Software)**

Offerors responding to this BAA requesting a procurement contract to be issued under the FAR shall identify all commercial technical data and commercial computer software that may be embedded in any noncommercial deliverables contemplated under the research effort, along with any applicable restrictions on the Government’s use of such commercial technical data and/or commercial computer software. In the event that offerors do not submit the list, the Government will assume that there are no restrictions on the Government’s use of such commercial items. The Government may use the list during the source selection evaluation process to evaluate the impact of any identified restrictions and may request additional information from the offeror, as may be necessary, to evaluate the offeror’s assertions. If no restrictions are intended, then the offeror should state “NONE.”

A sample list for complying with this request is as follows:

| COMMERCIAL  |                     |                          |                                       |
|---|---------------------|--------------------------|---------------------------------------|
| Technical Data, Computer Software To be Furnished With Restrictions | Basis for Assertion | Asserted Rights Category | Name of Person Asserting Restrictions |
| (LIST)  | (LIST)              | (LIST)                   | (LIST)                                |

#### **VI.B.3.b. All Offerors – Patents**

Include documentation proving ownership of or possession of appropriate licensing rights to all patented inventions (or inventions for which a patent application has been filed) that will be used under the proposal for the IARPA program. If a patent application has been filed for an invention that the proposal uses, but the application has not yet been made publicly available and contains

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any activity in which the United States Government is a party, including cooperative agreements with international or multi-national defense organizations, or sales or transfers by the United States Government to foreign governments or international organizations. Government purposes include competitive procurement, but do not include the rights to use, modify, reproduce, release, perform, display, or disclose technical data or computer software for commercial purposes or authorize others to do so.

proprietary information, the offeror may provide only the patent number, inventor name(s), assignee names (if any), filing date, filing date of any related provisional application, and a summary of the patent title, together with either: 1) a representation that the offeror owns the invention, or 2) proof of possession of appropriate licensing rights in the invention.

#### **VI.B.3.c. All Offerors – Intellectual Property Representations**

All offerors shall provide a good faith representation that you either own or possess appropriate licensing rights to all other intellectual property that will be used under your proposal for the IARPA program. Additionally, offerors shall provide a short summary for each item asserted with less than unlimited rights that describes the nature of the restriction and the intended use of the intellectual property in the conduct of the proposed research.

#### **VI.B.4. Meeting and Travel Requirements**

Performers are expected to assume responsibility for administration of their projects and to comply with contractual and Program requirements for reporting, attendance at Program workshops, and availability for site visits.

It is anticipated that awardees under this BAA will be required to present an overview of their proposed work at a program kick-off meeting for each phase. In addition, it is anticipated that attendance at Program Reviews will be required. It is expected that all key personnel will attend the Program Reviews. The purpose of these meetings is to facilitate an open exchange among all Program participants, including advisors to the Government. IARPA believes that this open interchange will result in a higher probability of success in achieving the overall program objectives. For costing purposes anticipate that each phase will include both a Program Kick-off meeting and a later Program Review to be held in the Metropolitan DC area. It is anticipated that the duration of each meeting shall be approximately 2-3 days. Performers should also anticipate periodic site visits at the Contractor's facility, at the frequency specified in Section I.B Program Milestones and Metrics.

#### **VI.B.5. Human Use**

All research involving human subjects, to include use of human biological specimens and human data, selected for funding must comply with the federal regulations for human subject protection.

Further, research involving human subjects that is conducted or supported by the DoD must comply with 32 CFR 219, *Protection of Human Subjects*, <http://www.dtic.mil/biosys/downloads/32cfr219.pdf>, DOD Directive 3216.02 *Protection of Human Subjects and Adherence to Ethical Standards in DoD-Supported Research*, <http://www.dtic.mil/whs/directives/corres/pdf/321602p.pdf>.

Institutions awarded funding for research involving human subjects must provide documentation of a current Assurance of Compliance with Federal regulations for human subject protection, for example a Department of Health and Human Services, Office of Human Research Protection Federal Wide Assurance (<http://www.hhs.gov/ohrp>). All institutions engaged in human subject research, to include sub-contractors, must also have a valid Assurance.

For all proposed research that will involve human subjects in the first year of the program, the institution must provide evidence of or a plan for review by an Institutional Review Board (IRB) upon final proposal submission to IARPA. The IRB conducting the review must be the IRB

identified on the institution's Assurance. The protocol, separate from the proposal, must include a detailed description of the research plan, study population, risks and benefits of study participation, recruitment and consent process, data collection, and data analysis. Consult the designated IRB for guidance on writing the protocol. The informed consent document must comply with federal regulations (32 CFR 219.116).

The Reynard Program plans to use a DoD Contracting Agent. In addition to a local IRB approval, a headquarters-level human subjects regulatory review and approval is required for all research conducted or supported by the DoD. The DoD office responsible for managing the award can provide guidance and information about their component's headquarters-level review process. Note that confirmation of a current Assurance and appropriate human subjects protection training is required before headquarters-level approval can be issued.

The amount of time required to complete the IRB review/approval process may vary depending on the complexity of the research and/or the level of risk to study participants. Ample time should be allotted to complete the approval process. The IRB approval process can last between one to three months, followed by a DoD review that could last between three to six months. No IARPA funding can be used towards human subjects research until ALL approvals are granted.

In limited instances, human subject research may be exempt from Federal regulations for human subject protection, for example, under Department of Health and Human Services, 45 CFR 46.101(b). Offerors claiming that their research falls within an exemption from Federal regulations for human subject protection must provide written documentation with their proposal that cites the specific applicable exemption and explains clearly how their proposed research fits within that exemption.

#### **VI.B.6. Publication Approval**

It is anticipated that research funded under this Program will be unclassified contracted fundamental research that will not require a pre-publication review. However, performers should note that pre-publication approval of certain information may be required if it is determined that its release may result in the disclosure of sensitive intelligence information. A courtesy soft copy of any work submitted for publication should be provided to the IARPA Program Manager and the Contracting Officer Representative (COR).

#### **VI.B.7. Export Control**

(1) The offeror shall comply with all U.S. export control laws and regulations, including the International Traffic in Arms Regulations (ITAR), 22 CFR Parts 120 through 130, and the Export Administration Regulations (EAR), 15 CFR Parts 730 through 799, in the performance of this contract. In the absence of available license exemptions/exceptions, the offeror shall be responsible for obtaining the appropriate licenses or other approvals, if required, for exports of (including deemed exports) hardware, technical data, and software, or for the provision of technical assistance.

(2) The offeror shall be responsible for obtaining export licenses, if required, before using foreign persons in the performance of this contract, including instances where the work is to be performed on-site at any Government installation (whether in or outside the United States), where

the foreign person will have access to export-controlled technologies, including technical data or software.

(3) The offeror shall be responsible for all regulatory record keeping requirements associated with the use of licenses and license exemptions/exceptions.

(4) The offeror shall be responsible for ensuring that the provisions of this clause apply to its subcontractors.

(5) The offeror will certify knowledge of and intended adherence to these requirements in the representations and certifications of the contract.

#### **VI.B.8. Subcontracting**

It is the policy of the Government to enable small business and small disadvantaged business concerns to be considered fairly as sub-contractors to contractors performing work or rendering services as prime contractors or sub-contractors under Government contracts and to assure that prime contractors and sub-contractors carry out this policy. Each offeror that submits a proposal that includes sub-contractors; is selected for funding (pending negotiations); and has proposed a funding level above the maximum cited in the FAR, may be asked to submit a sub-contracting plan before award, in accordance with FAR 19.702(a) (1) and (2). The plan format is outlined in FAR 19.704.

#### **VI.B.9. Reporting**

The number and types of reports will be specified in the award document, but will include as a minimum monthly financial and technical status reports. The reports shall be prepared and submitted in accordance with the procedures contained in the award document and mutually agreed upon before award. Technical reports will describe technical highlights and accomplishments, priorities and plans, issues and concerns; will provide evaluation results; and will detail future plans. Financial reports will present an on-going financial profile of the project, including total project funding, funds invoiced, funds received, funds expended during the preceding month and planned expenditures over the remaining period. Additional reports and briefing material may also be required as appropriate to document progress in accomplishing program metrics.

Performers will prepare a final report at the conclusion of the performance period of the award, even if that the research may continue under a follow-on vehicle. The final report will be delivered to the Contracting Agent, the Contracting Officer Representative, and the Reynard Program Manager. The report will include:

- Problem definition
- Findings and approach
- Quantitative behavioral indicators
- Possible generalization(s)
- Suggestions for future research

#### **VI.B.10. Central Contractor Registration (CCR)**

Selected offerors not already registered in the Central Contractor Registry (CCR) may be required to register in CCR prior to any award under this BAA. Information on CCR registration is available at <http://www.ccr.gov>.

#### **VI.B.11. Representations and Certifications**

Prospective offerors may be required to complete electronic annual representations and certifications at <http://orca.bpn.gov>. Successful offerors will be required to complete additional representations and certifications prior to award.

#### **VI.B.12. Certification for Contract Awards**

Certifications and representations shall be completed by successful offerors prior to award. Federal Acquisition Regulation (FAR) Online Representations and Certifications Application (ORCA) is at website <http://orca.bpn.gov>. Defense FAR Supplement and contract specific certification packages will be provided to the contractor for completion prior to award.

#### **VI.B.13. Wide Area Work Flow (WAWF)**

Unless using another approved electronic invoicing system, performers will be required to submit invoices for payment directly via the Internet/WAWF at <http://wawf.eb.mil>. Registration to WAWF will be required prior to any award under this BAA.

## **VII. AGENCY CONTACTS**

Administrative, technical or contractual questions should be sent via e-mail to [dni-iarpa-baa-09-05@ugov.gov](mailto:dni-iarpa-baa-09-05@ugov.gov). If e-mail is not available, fax questions to (301)226-9137, Attention: IARPA-BAA-09-05. All requests must include the name, email address (if available), and phone number of a point of contact for the requested information. Do not send questions with proprietary content. IARPA will accept questions about the BAA until June 9, 2009. A consolidated Question and Answer list will be posted periodically on the IARPA website ([www.iarpa.gov](http://www.iarpa.gov)); no answers will go directly to the submitter.

### Points of Contact:

The technical POC for this effort is

Dr. Rita Bush, IARPA, Incisive Analysis Office  
ATTN: IARPA-BAA-09-05  
Office of the Director of National Intelligence  
Intelligence Advanced Research Projects Activity  
Washington, DC 20511  
Fax: (301) 226-9137  
Electronic mail: [dni-iarpa-baa-09-05@ugov.gov](mailto:dni-iarpa-baa-09-05@ugov.gov)  
Fax: 301-226-9137

All emails must have the BAA number (IARPA-BAA-09-05) in the Subject Line.

## **APPENDIX 1**

**CERTIFICATION OF COMPLIANCE  
WITH  
END USER LICENSING AGREEMENTS (EULA),  
TERMS of SERVICE (ToS)  
AND  
CODE of CONDUCT (CoC)**

CERTIFICATION OF COMPLIANCE  
WITH  
END USER LICENSING AGREEMENTS (EULA),  
TERMS of SERVICE (ToS)  
AND  
CODE of CONDUCT (CoC)

I **[Insert name of Principle Investigator]** hereby certify that the **[Insert name of research project]** in support of the IARPA Reynard Program agrees to be bound by terms of any EULA, ToS, and CoC associated with the virtual worlds (VW) used as part of this research. This agreement extends to all members of the **[insert name of research project]** research team and third party contractors.

I certify that all **[insert name of research project]** researchers will have signed a statement that they have read and will comply with the EULA, ToS, and CoC, and that these statements will be kept on file and available for review by IARPA.

In the event that any proposed **[insert name of research project]** research method violates some section of the EULA, ToS, or CoC, I will provide the IARPA/Reynard Program Manager with a copy of the written waiver from the VW vendor prior to initiating research activities.

In the event that a VW vendor revokes a EULA or TOS waiver, I will immediately notify the IARPA Reynard Program Manager, and discontinue the research method that required the waiver until the issue is resolved.

[Signature of Principle Investigator] [Date]

[Name of Principle Investigator]

[Name of Research Project]

## **APPENDIX 2**

### **SAMPLE COVER SHEET**

**for**

**VOLUME 1: Technical/Management Details**

**BROAD AGENCY ANNOUNCEMENT (BAA)**

**Reynard Program**

**IARPA-BAA-09-05**

| <b>IARPA-BAA-09-05</b>  |  |
|---|--|
| Date of Proposal Submission   |  |
| Lead Organization/Company Name<br>(Submitting Proposal)   |  |
| Contractor Reference Number, if any   |  |
| Type of Business (large business, small disadvantaged business, other small business, HBCU, MI, other educational or other nonprofit)                 |  |
| Team Member(s)/Organization   |  |
| Name(s) of Each Team Member   |  |
| Name(s)/Organization Name(s) of Principal Investigator(s)   |  |
| Proposal Title  |  |
| Research areas (Avatars & Representation, Communication, Things that Avatars Do, Group Formation & Dynamics, Money & Economics, Cultural Differences) |  |
| Research Methodologies (e.g., Observational, Experimental, Log Analysis, Survey, Case Study, Other (describe))  |  |
| Technical Point of Contact Name<br>(First Name, Last Name)  |  |
| Mailing Address<br>(organization information, street, city, state, zip code)  |  |
| Phone Number  |  |
| Fax Number  |  |
| E-mail Address  |  |
| Administrative Point of Contact<br>Name (First Name, Last Name)   |  |
| (Admin Contact) Mailing Address   |  |
| Phone Number  |  |
| Fax Number  |  |
| E-mail Address  |  |
| OCI Waiver or Certification<br>included? Yes/No   |  |
| If no, reason for not<br>including?   |  |
| One or more Academics<br>Organizations on team? Yes/No  |  |
| If yes, Academic Institution<br>Acknowledgement Statement   |  |

|   |  |
|---|--|
| included for each Academic Organization? Yes/No |  |
| Cost Sharing Information, if any                |  |
| Proposed Cost (Base Period) \$                  |  |
| Proposed Cost (Option Period) \$                |  |
| Total Proposed Cost \$                          |  |

**APPENDIX 3**

**SAMPLE COVER SHEET**  
for  
**VOLUME 2: Cost Proposal**  
**BROAD AGENCY ANNOUNCEMENT (BAA)**  
**Reynard Program**  
**IARPA-BAA-09-05**

| <b>IARPA-BAA-09-05</b>  |  |
|---|--|
| Date of Proposal Submission   |  |
| Lead Organization/Company Name<br>(Submitting Proposal)   |  |
| CAGE Code   |  |
| DUNS/CEC Number   |  |
| TIN Number  |  |
| Contractor Reference Number, if any   |  |
| Type of Business (large business,<br>small disadvantaged business, other small<br>business, HBCU, MI, other educational or<br>other nonprofit)                        |  |
| Team Member(s)/Organization Name(s) of<br>Each Team Member  |  |
| Type of Business of each team<br>member (large business, small<br>disadvantaged business, other small business,<br>HBCU, MI, other<br>educational or other nonprofit) |  |
| Sub-contractor Information  |  |
| Proposal Title  |  |
| Research areas (Avatars & Representation,<br>Communication, Things that Avatars Do,<br>Group Formation & Dynamics, Money &<br>Economics, Cultural Differences)        |  |
| Research Methodologies (e.g., Observational,<br>Experimental, Log Analysis, Survey, Case<br>Study, Other (describe))  |  |
| Technical Point of Contact Name (First<br>Name, Last Name)  |  |
| Mailing Address (organization information,<br>street, city, state, zip code)  |  |
| Phone Number  |  |
| Fax Number  |  |
| E-mail Address  |  |
| Administrative Point of Contact Name (First<br>Name, Last Name)   |  |
| (Admin Contact) Mailing Address   |  |
| Phone Number  |  |
| Fax Number  |  |
| E-mail Address  |  |
| Offeror's cognizant Defense Contract  |  |
| Management Agency (DCMA) administration<br>office or equivalent cognizant contract<br>administration entity (if known): name,<br>address, phone number                |  |

|   |  |
|---|--|
| Offeror's cognizant Defense Contract Audit Agency (DCAA) audit office or equivalent cognizant contract audit entity (if known): name, address, phone number |  |
| Award Instrument (Cost-plus-fixed-fee (CPFF), cost-contract/no fee, cost sharing contract/no fee, other type of procurement contract ( <i>specify</i> ))    |  |
| Places and periods of performance   |  |
| Proposal Validity Period (minimum 90 days)  |  |
| Proposed Cost (Base Period) \$  |  |
| Proposed Cost (Option Period) \$  |  |
| Total Proposed Cost \$  |  |

## **APPENDIX 4**

### **SAMPLE ACADEMIC INSTITUTION ACKNOWLEDGEMENT LETTER OF ODNI INTELLIGENCE COMMUNITY FUNDING Reynard Program IARPA-BAA-09-05**

-- Please Place on Official Letterhead --

<insert date>

To: Mr. Thomas Kelso  
Chief Acquisition Officer  
ODNI/IARPA  
Office of the Director of National Intelligence  
Washington, D.C. 20511

Subject: Academic Institution Acknowledgement Letter

Reference: Executive Order 12333, As Amended, Para 2.7

This letter is to acknowledge that the undersigned is the responsible official of <insert name of the academic institution>, authorized to approve the contractual relationship in support of the Office of the Director of National Intelligence's Intelligence Advanced Research Projects Activity and this academic institution.

The undersigned further acknowledges that he/she is aware of the Intelligence Advanced Research Projects Activity's proposed contractual relationship with <insert name of institution> through <insert solicitation #> and is hereby approved by the undersigned official, serving as the president, vice-president, chancellor, vice-chancellor, or provost of the institution.

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<Name>  
<Position>

Date

Copy Furnished:  
Mr. John Turnicky  
Chief, ODNI Contracts  
Office of the Director of National Intelligence  
Washington, DC 20511